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ZOOLOGY.—*The Philippine Island landshells of the genus* Platyraphe.[1] PAUL BARTSCH, U. S. National Museum.

Demands for identification of Philippine Island land mollusks have made it necessary to subject a number of groups to a thorough revision. Of these the genus *Platyraphe* seems to have been very poorly understood by writers in the past, and members belonging to this genus have been indiscriminately placed with *Platyraphe* or *Eucyclotus* and *Pseudocyclophorus*. It is not at all surprising that this should have been the case, for the true characters of the group seem to have so far been overlooked, and the superficial characters in many instances resemble characters presented by members of the other two genera.

Members of the genus *Platyraphe* can, however, always be distinguished by the possession of a slender tube in the angle of junction between the outer lip and the parietal wall, on the inside of the aperture; that is, on the inside of the posterior angle of the aperture. This tube begins a little behind the peristome where it is punctured and extends back for a variable distance in different species, terminating in a second puncture. It is evidently used as a breathing siphon when the animal is withdrawn and the shell sealed by the operculum.

Additional new material is arriving so frequently from unexplored regions of the Islands that it does not seem advisable at the present time to publish a monograph upon this group. I am, therefore, retaining the manuscript, which is being added to as the material arrives, and for the present offer a simple key, which it is believed will be of assistance to collectors in identifying their material.

[1] Published by permission of the Secretary of the Smithsonian Institution.

Key to the subgenera of *Platyraphe*

Last opercular turn covered with a solid fused deposit. *Platyraphina* new subgenus
Type *Platyraphe* (*Platyraphina*) *catanduanensis* Bartsch
Last opercular turn not covered with a solid fused deposit.
Last opercular turn provided with obliquely placed imbricating scales. *Platyraphida* new subgenus
Type *Platyraphe* (*Platyraphida*) *anthopoma* Möllendorff
Last opercular turn not provided with obliquely placed imbricating scales.
Operculum with the inner edge of the whorls upturned to form a thickened lamella. *Platyraphe* Möllendorff
Type *Platyraphe* (*Platyraphe*) *coptoloma* Möllendorff
Operculum with the inner edge of the whorls not upturned to form a thickened lamella. *Platyraphella* new subgenus
Type *Platyraphe* (*Platyraphella*) *malibagoana* Bartsch

Key to the species and subspecies of the genus *Platyraphe*

Last opercular turn covered with a solid fused deposit *PLATYRAPHINA*
Spiral sculpture present on last turn.
Greater diameter more than 17 mm. *catanduanensis*
Greater diameter less than 9 mm. *calayanensis*
Spiral sculpture absent on last turn *mamillata*
Last opercular turn not covered with a solid fused deposit
Last opercular turn provided with obliquely placed imbricating scales. *PLATYRAPHIDA*
Greater diameter more than 14 mm.
Spire depressed. *anthopoma*
Spire elevated. *media*
Greater diameter less than 14 mm.
Last nuclear turn with strong axial riblets. *minor*
Last nuclear turn with feeble axial riblets. *montalbana*
Last opercular turn not provided with obliquely placed imbricating scales.
Operculum with the inner edge of the whorls upturned to form a thickened lamella. *PLATYRAPHE*
Last whorl disjunct at the aperture in adult shells.
Spiral lirations strongly developed on the last whorl.
Peristome decidedly expanded. *coptoloma*
Peristome not expanded.
Greater diameter more than 6 mm.
Strong spiral lirations at the end of the second whorl 8. *princessana*

Strong spiral lirations at the end of the second whorl not 8.
Strong spiral lirations at the end of the second whorl 10.....*busuangensis*
Strong spiral lirations at the end of the second whorl not 10.
Strong spiral lirations at the end of the second whorl 12.....*balabakensis*
Greater diameter less than 6 mm.
Strong spiral lirations at the end of the second whorl 12.....*ulugana*
Strong spiral lirations at the end of the second whorl not 12.
Strong spiral lirations at the end of the second whorl 9.
Greater diameter more than 5 mm.....*leytensis*
Greater diameter less than 5 mm.....*guimarasensis*
Spiral lirations not strongly developed on the last whorl.
Spiral lirations only feebly developed on the last whorl.
Strong spiral lirations at the end of the second whorl 16.....*gradata*
Strong spiral lirations at the end of the second whorl not 16.
Strong spiral lirations at the end of the second whorl 12.....*toledoana*
Strong spiral lirations at the end of the second whorl not 12.
Strong spiral lirations at the end of the second whorl 8.....*businensis*
Strong spiral lirations at the end of the second whorl not 8.
Strong spiral lirations at the end of the second whorl 7.....*negrosensis*
Strong spiral lirations at the end of the second whorl not 7.
Strong spiral lirations at the end of the second whorl 6.
Spiral lirations on the umbilical wall of the last whorl well marked.....*mindanensis*
Spiral lirations on the umbilical wall of the last whorl obsolete.....*buriasensis*
Spiral lirations not feebly developed on the last whorl.
Spiral lirations absent on the last whorl.
Incremental sculpture very strong.
Incremental sculpture consisting of rough riblike elements and fine threads between them..*surigaoana*

Incremental sculpture consisting of rough riblike elements only.
Greater diameter more than 13 mm.
Inner edge of opercular turns decidedly free, forming a strong lamella.....*cebuensis*
Inner edge of opercular turns not decidedly free nor forming a strong lamella...*anacampta*
Greater diameter less than 11 mm.....*samarensis*
Incremental sculpture not very strong.....*balukensis*
Last whorl not disjunct at the aperture in adult shells.
Last whorl strongly spirally lirate.
Spiral lirations absent on the anterior third of the whorls.
Greater diameter more than 13 mm.....*mucronata*
Greater diameter less than 13 mm.
Greater diameter more than 10 mm.
Shell finely spirally lirate.....*cagayanica*
Shell coarsely spirally lirate.....*vincentensis*
Greater diameter less than 8 mm.....*palauiensis*
Spiral lirations not absent on the anterior third of the whorl.
Shell planorboid.
Spiral sculpture present at the summit of the whorls.
Nepionic whorls dark.
Greater diameter more than 10 mm.....*lateplicata*
Greater diameter less than 9 mm.....*stenostoma*
Nepionic whorls light.....*sibuyanensis*
Spiral sculpture absent at the summit of the whorls.
.....*lubangensis*
Shell not planorboid.
Spiral lirations feeble on the upper surface of the last fourth turn.
Spire depressed.
Spiral lirations on the base of last whorl strong
.....*jordana*
Spiral lirations on the base of last whorl feeble
.....*toppingi*
Spire not depressed but rather elevated.
Axial sculpture very coarse.....*saranganiensis*
Axial sculpture not coarse.....*palmasensis*
Spiral lirations not feeble on the upper surface of the last fourth turn.
Spiral lirations obsolete on the upper surface of the last fourth turn.
Greater diameter more than 10 mm.
Strong spiral lirations on the next to the last whorl 5.....*pagbilaoensis*
Strong spiral lirations on the next to the last whorl not 5.

Strong spiral lirations on the next to the last whorl 6 ..... *pusilla*
Strong spiral lirations on the next to the last whorl not 6.
Strong spiral lirations on the next to the last whorl 12 ..... *bonahaoana*
Greater diameter less than 9 mm.
Spiral opercular lamella remarkably broad *bulusana*
Spiral opercular lamella not remarkably broad.
Spiral lirations at the end of the second whorl 8.
Spiral lirations strong on the first half of the last turn ..... *balanacana*
Spiral lirations feeble on the first half of the last turn ..... *ticaoensis*
Spiral lirations at the end of the second turn not 8.
Spiral lirations at the end of the second turn 7 ..... *masbatensis*
Spiral lirations at the end of the second turn not 7.
Spiral lirations at the end of the second turn 5 ..... *marinduquensis*
Operculum with the inner edge of the whorls not upturned to form a thickened lamella ..... *PLATYRAPHELLA*
Umbilicus almost closed.
Strong riblike axial sculpture distantly spaced .... *malibagoana*
Strong riblike axial sculpture not distantly spaced ..... *globula*
Umbilicus not almost closed.
Umbilicus narrow.
Greater diameter more than 12 mm.
Axial sculpture of base very rough ..... *plebeia*
Axial sculpture of base not very rough ..... *camarinana*
Greater diameter less than 10 mm ..... *cruzana*
Umbilicus broad.
Spire well elevated.
Greater diameter more than 12 mm ..... *expansilabris*
Greater diameter less than 11 mm.
Peristome broadly expanded ..... *calamianensis*
Peristome not broadly expanded ..... *bakuitana*
Spire depressed ..... *substriata*

TABLE 1

ADDITIONAL DATA PERTAINING TO THE FORMS NAMED IN THE ABOVE KEY

Name	No. whorls	Altitude	Greater diameter	Cat. No. U.S.N.M.	Locality	Remarks
Platyraphe (Platyraphina) catanduanensis new species	4.3	9.5	17.8	310532	Catanduanes	Type
Platyraphe (Platyraphina) calayanensis new species	4.2	5.3	8.5	310531	Calayan	Type
Platyraphe (Platyraphina) mamillata Möllendorff	4.2	8.2	16.8	303094	Cagayan, Luzon	....
Platyraphe (Platyraphida) anthopoma Möllendorff	4.4	7.5	15.2	184801	Montalban, Luzon	....
Platyraphe (Platyraphida) anthopoma minor Möllendorff	4.3	5.9	13.0	184805	Sibul, Luzon	....
Platyraphe (Platyraphida) anthopoma montalbana new subspecies	4.1	5.2	9.8	195710	Montalban, Luzon	Type
Platyraphe (Platyraphida) anthopoma media Möllendorff	...	....	....	.....	Mt. Limutan, Luzon	....
Platyraphe (Platyraphe) coptoloma Möllendorff	4.1	6.3	10.0	201070	Magapig, Cagayan, Luzon	....
Platyraphe (Platyraphe) princessana new species	4.0	5.0	6.9	303099	Pto. Princesa, Palawan	Type
Platyraphe (Platyraphe) busuangensis new species	4.0	5.1	6.7	303089	Busuanga	Type
Platyraphe (Platyraphe) balabakensis new species	4.0	4.7	6.6	310533	Latangun, Balabac	Type
Platyraphe (Platyraphe) ulugana new species	4.2	3.8	5.9	310534	Ulugan, Palawan	Type
Platyraphe (Platyraphe) leytensis new species	4.0	3.6	5.7	303095	Leyte	Type
Platyraphe (Platyraphe) guimarasensis new species	4.1	3.3	4.9	257535	Jordan River, Guimaras	Type
Platyraphe (Platyraphe) gradata Möllendorff	4.4	5.3	7.0	310535	Coron Island	....
Platyraphe (Platyraphe) toledoana new species	4.0	5.2	8.9	310536	Toledo, Cebu	Type
Platyraphe (Platyraphe) businensis new species	4.0	4.5	6.7	258745	Busin Bay, Busin Id.	Type
Platyraphe (Platyraphe) negrosensis new species	3.9	4.4	7.0	195774	Negros Id.	Type
Platyraphe (Platyraphe) mindanensis new species	4.0	4.3	6.3	258738	Lianga Bay, Mindanao	Type
Platyraphe (Platyraphe) buriasensis new species	4.2	4.9	7.0	258741	Pasqual, Burias	Type
Platyraphe (Platyraphe) surigaoana new species	4.3	7.8	13.2	310537	Gigaquit, Mindanao	Type
Platyraphe (Platyraphe) cebuensis new species	4.4	8.9	13.8	184809	Cebu	Type
Platyraphe (Platyraphe) anacampta Möllendorff	4.3	6.8	13.2	184796	Samar	....
Platyraphe (Platyraphe) samarensis new species	4.5	8.1	10.3	258735	Catbalogan, Samar	Type
Platyraphe (Platyraphe) balukensis new species	4.4	6.2	10.0	258751	Balukbaluk Island	Type
Platyraphe (Platyraphe) mucronata Sowerby	4.0	7.8	13.8	184808	Morong, Luzon	....
Platyraphe (Platyraphe) mucronata cagayanica new subspecies	4.0	6.2	11.2	310538	San Vicente, Cagayan, Luzon	Type
Platyraphe (Platyraphe) vincentensis new species	4.1	6.7	11.2	239868	St. Vincente Island	Type
Platyraphe (Platyraphe) palauiensis new species	4.0	6.0	7.4	257537	Palaui Island	Type
Platyraphe (Platyraphe) lateplicata Möllendorff	4.3	5.2	12.1	303082	Tablas Island	....

Name	No. whorls	Altitude	Greater diameter	Cat. No. U.S.N.M.	Locality	Remarks
Platyraphe (Platyraphe) stenostoma Möllendorff	4.0	5.0	8.3	310539	Badajoz, Tablas Island	....
Platyraphe (Platyraphe) sibuyanensis new species	4.1	5.1	9.3	310540	San Fernando, Sibuyan	Type
Platyraphe (Platyraphe) lubangensis new species	4.2	6.2	13.3	258733	Guntung Mt., Lubang	Type
Platyraphe (Platyraphe) jordana new species	4.2	5.2	9.0	257535	Jordan River, Guimaras	Type
Platyraphe (Platyraphe) toppingi new species	4.1	5.2	9.0	258724	Montalban, Luzon	Type
Platyraphe (Platyraphe) saranganiensis new species	4.0	4.8	6.0	256423	Sarangani Island	Type
Platyraphe (Platyraphe) palmasensis new species	3.9	3.9	5.6	258755	Palmas Island	Type
Platyraphe (Platyraphe) pusilla Sowerby	4.1	6.3	10.3	104750	Calamang, Luzon	Cotype
Platyraphe (Platyraphe) pusilla pagbilaoensis new subspecies	4.2	5.8	9.5	310541	Greater Pagbilao Id.	Type
Platyraphe (Platyraphe) pusilla bonahoana new subspecies	4.3	6.8	11.0	195708	Majayjay, Luzon	Type
Platyraphe (Platyraphe) pusilla bulusana new subspecies	4.2	5.2	8.3	310542	Bulusan, Luzon	Type
Platyraphe (Platyraphe) pusilla balanacana new subspecies	4.3	5.1	7.4	303100	Balanacan, Luzon	Type
Platyraphe (Platyraphe) ticaoensis new species	4.3	4.9	7.9	258730	San Miguel Harbor, Ticao	Type
Platyraphe (Platyraphe) masbatensis new species	4.2	5.2	7.7	288748	Cataingan Bay, Masbate	Type
Platyraphe (Platyraphe) marinduquensis new species	4.2	5.9	8.2	258739	Santa Cruz River, Marinduque	Type
Platyraphe (Platyraphella) malibagoana new species	4.5	11.2	10.7	310543	Malibago, Marinduque	Type
Platyraphe (Platyraphella) globula Möllendorff	4.5	11.5	11.1	303091	Luzon	.....
Platyraphe (Platyraphella) plebeia Sowerby	4.3	9.7	11.3	104741	Calamang	Cotype
Platyraphe (Platyraphella) plebeia camarinana new subspecies	4.5	11.0	12.6	184806	Camarines, Luzon	Type
Platyraphe (Platyraphella) cruzana new species	4.4	8.9	10.1	257169	Santa Cruz River, Marinduque	Type
Platyraphe (Platyraphella) expansilabris Quadras & Möllendorff	4.5	8.9	13.9	184795	Calamianes, Luzon	....
Platyraphe (Platyraphella) calamianensis new species	4.3	7.8	10.5	184804	Calamianes, Luzon	Type
Platyraphe (Platyraphella) bakuitana new species	4.5	7.8	9.8	310544	Bacuit, Palawan	Type
Platyraphe (Platyraphella) substriata Sowerby	4.1	8.1	13.1	104752	Siquijor	Cotype

PROCEEDINGS OF THE ACADEMY AND AFFILIATED SOCIETIES

BIOLOGICAL SOCIETY

599TH MEETING

The 599th regular meeting of the Biological Society of Washington was held in the Assembly Hall of the Cosmos Club on October 18, 1919; called to order at 8.30 p.m. by Vice-President N. HOLLISTER. Thirty-six persons were present.

The following informal communications were presented:

R. W. SHUFELDT: *Exhibition of a young specimen of the wood tortoise* [Clemmys insculpta (*Le Conte*)] secured recently near Bennings, in the District of Columbia. An adult animal was shown for comparison.

WM. PALMER: *Further remarks upon the occurrence of the wood tortoise in the District of Columbia.* Three were reported from the Eastern Branch, one from Plummers Island and another from a marshy spot below Plummers Island. One taken by E. A. PREBLE is now in the District Collection in the National Museum. Three young tortoises of this species were taken from the stomach of a copperhead killed by F. C. CRAIGHEAD.

P. BARTSCH: *Note on the extraordinary tameness of red-breasted nuthatches observed on Mt. Monadnock, New Hampshire.*

The regular program consisted of three communications.

J. S. GUTSELL: *Use of selective screens in studies of oyster larvae.* Mr. Gutsell stated that in studies of larval oysters the Bureau of Fisheries has developed a method of collecting material from a power boat, by means of a pump having a capacity of several gallons a minute. The water thus secured is strained through a screen made of bolting silk. Catches are made in desired localities, placed in suitable containers, and transferred to the laboratory. There the material is passed through a series of six wire-gauze screens of graduated fineness. Much undesired material is removed by the two upper screens that are coarse enough to permit the passage of the oyster larvae. The four remaining screens automatically separate the larvae according to size. Daily studies of the condition of the segregated larvae make it possible to foretell the time when the larvae will set. As the method of collection is quantitative, it is possible also to show where the larvae are drifted by tidal currents and thus to indicate the location of the culch when the proper time arrives. Discussion by Dr. P. BARTSCH followed.

T. S. PALMER: *The discoverer of the toothed birds of Kansas.* Dr. Palmer presented a brief account of the life of Prof. BENJAMIN FRANKLIN MUDGE, former State Geologist of Kansas. Prof. Mudge was born at Orrington, Maine, August 11, 1817, and died at Manhattan, Kansas, Nov. 21, 1879. He came to Kansas about the beginning of the Civil War and was elected State Geologist in 1864. In 1865 he was appointed Professor of Natural Sciences in the State Agricultural College at Manhattan. The last five years of his life were spent in collecting fossils for Prof. O. C. MARSH. During the summer of 1872 Prof. Mudge discovered in the Niobrara beds of the Solomon River the remains of *Ichthyornis dispar*, the first known Cretaceous bird belonging to the group that had teeth in sockets. Four years later at Fort McKinney, Texas, he discovered another species now known as *Ichthyornis lentus*. Only five other species of this genus are now recognized. Prof. Mudge has been described as a "Prince of collectors in the West," and Prof. LESQUEREAUX referred to him in 1871 as "the only truly scientific Geologist west of the Mississippi River." Discussion by J. W. GIDLEY, A. WETMORE and R. W. SHUFELDT followed.

PAUL BARTSCH: *Results in Cerion breeding.* Dr. Bartsch gave an interesting account of experiments in transplanting landshells of the genus *Cerion* from Andros Island in the Bahamas to certain of the Florida Keys. A complete report of the results obtained is now in press and will be published shortly by the Carnegie Institution of Washington. Discussion by H. C. OBERHOLSER and A. WETMORE followed.

ALEXANDER WETMORE, *Recording Secretary pro tem.*

600TH MEETING

The 600th regular meeting of the Biological Society of Washington was held in the Assembly Hall of the Cosmos Club, on November 1, 1919; called to order at 8.10 p.m. by President H. M. SMITH. Fifty-five persons were present.

On recommendation of the council the following were elected to membership: Federated Malay States Museum, Kuala Lumpur, F. M. S.; ELLSWORTH KILLIP, U. S. National Museum.

It was announced that the Council had resolved to tender a vote of thanks to Dr. M. W. LYON, JR., in recognition of his faithful and untiring service as Recording Secretary. This action of the Council was confirmed, and unanimously endorsed by the members present.

Under heading of book notices and general notes the following were communicated:

Dr. H. M. SMITH read an announcement of the unveiling of a monument at Arlington Cemetery, dedicated to the memory of Surgeon General GEORGE MILLER STERNBERG. Gen. Sternberg was President of the Society in 1895 and 1896.

Dr. T. S. PALMER gave notice of the meeting of the American Ornithologists' Union to be held in New York City, November 11 to 13,

inclusive. Dr. Palmer continued with an account of a visit to the New York City Marble Cemetery, where he saw the grave of Dr. DAVID HOSACK. Dr. Hosack, a physician, came to this country from Scotland in 1794, and was instrumental in founding the first Botanical Garden in America, in 1801. Dr. Palmer also announced that recently, in Philadelphia, he had examined a slate over the grave of RAFINESQUE, a site that previously had been unmarked. A suitable tablet has now been installed through the generosity of Messrs. HAND, MERCER and RHOADS.

Dr. C. W. STILES remarked that he had recently seen the grave of E. A. DE SCHWEINITZ in Winston-Salem, North Carolina. Dr. Stiles also announced that recently two manatees (*Trichechus manatus* Linn.) had appeared in Wrightsville Sound, eight miles from Wilmington, N. C., a northern record for this mammal. One of these manatees had been captured and was now on exhibition in Wilmington.

Dr. H. M. SMITH exhibited a recent publication by Dr. R. E. COKER on *The fresh water mussels and the mussel industry of the United States*, published in the bulletin of the Bureau of Fisheries. This paper was excellently illustrated and embodied a most thorough and comprehensive treatise on the subject. Dr. Smith also announced that the steamer *Albatross* had sailed for a cruise along the South Atlantic and Gulf coasts as far as Yucatan. The vessel has been refitted recently with greatly improved apparatus. He also remarked that a recent communication from the agent of the Bureau of Fisheries on St. George Island, Alaska, announced the finding of a dead specimen of the bearded hair seal [*Erignathus barbatus* (Erxleben)] on the beach. The animal measured 93 inches long and appeared to be very old.

Rear Admiral BAIRD exhibited an interesting collection of sea-weeds made thirty years ago by Mrs. BAIRD under the instruction of the elder VERRILL.

The regular program was introduced by the President, Dr. H. M. SMITH, who stated that the present meeting was to be celebrated as the sixth meeting-centenary of the Society. The Biological Society was founded on December 3, 1880, with 44 founders and original members. With 35 of these the speaker had had personal acquaintance. The custom had arisen of setting aside each hundredth meeting of the Society as a commemorative meeting, of which the present was the sixth. The first commemorative meeting (one hundredth meeting) had taken place on November 27, 1886, with Dr. G. BROWN GOODE in the chair, and the fifth on October 19, 1912, at Plummers Island, Maryland, where the Society had been entertained by the Washington Biologists' Field Club.

The Secretary then read a letter from Dr. F. A. LUCAS congratulating the Society upon the occasion and regretting his inability to be present.

Dr. L. O. HOWARD presented a paper entitled *Early days of the Society*. The speaker remarked that in 1880, at the time of the formation of the Biological Society, Boston was considered the scientific center of

the United States and the present-day concentration of scientific workers in Washington was just beginning. The first meeting of the Society was held in the home of an entomologist, C. V. RILEY, and the first paper presented was by an ichthyologist, T. H. BEAN. A number of incidents of early days were related, among which was one of the attendance on May 8, 1897, of THEODORE ROOSEVELT, then Assistant Secretary of the Navy. Mr. Roosevelt came to discuss a recent communication by Dr. MERRIAM on the classification of mammals. In closing, Dr. Howard remarked that with the increased number of specialists other bodies had been organized as offshoots from the parent Biological Society and that more of these were coming in the future. All were united, however, in desiring long life and prosperity to the original organization.

The second paper, by Dr. W. H. DALL, was entitled *Reminiscences*. Dr. Dall related that in 1880, in company with T. H. BEAN, he was engaged on a survey of the Alaskan coast in the vessel *Yukon*. He returned to Washington December 31, 1880, and was elected to membership in the Biological Society in January, 1881. The first paper read at a meeting of the Society was by T. H. BEAN on results obtained on this voyage of the *Yukon*, while the second was a presentation of WARD'S *Flora of the District of Columbia*. Other incidents of great interest regarding the early days of the Society were given and the speaker closed by remarking that in his opinion no other society had contributed more toward the advancement of the study of biology in North America.

Dr. T. S. PALMER continued the regular program with a discussion of *The "Proceedings."* The speaker stated that with the current year the *Proceedings of the Biological Society of Washington* will have completed thirty-two volumes that have averaged from one hundred to two hundred pages each. The series now has covered approximately five thousand pages. The first six volumes include addresses made before the Society as well as other matter. The character of the publication was then changed to its present form, a series of brochures comprising short papers and brief notes that deal with new and original contributions in systematic zoology and botany; while one brochure, published at the close of each year, gives a brief synopsis of the regular meetings of the Society. The *Proceedings* have attained such importance that workers in systematic biology find it essential to have the set available for reference.

Discussion of these three papers followed, by H. M. SMITH, M. B. WAITE, W. P. HAY, and DAVID WHITE.

ALEXANDER WETMORE, *Recording Secretary pro tem.*

SCIENTIFIC NOTES AND NEWS

Dr. ARTHUR L. DAY, Director of the Geophysical Laboratory, Carnegie Institution of Washington, gave the public lecture at the annual meeting of the trustees of the Institution in Washington, on December 11, 1919. The subject of the lecture was "The War Work of the Geophysical Laboratory."

Rear Admiral JAMES MILTON FLINT, U. S. N. (Retired), a charter member of the ACADEMY, died at his home in Washington on November 21, 1919, in his eighty-second year. Admiral Flint was born at Hillsborough, New Hampshire, February 7, 1838. He entered the United States Navy as assistant surgeon in 1862, and became medical director of the Navy in 1897, retiring from the service in 1900. During his service with the Navy he was connected at various periods with the U. S. Fish Commission (1884–1887), and with the Smithsonian Institution and National Museum as curator of the Division of Medicine.

Mr. WILLIAM M. HALL, assistant forester in the Forest Service, resigned on November 24 after twenty years of forestry work. He has become a partner in an enterprise established in Chicago to handle land exchanges.

Major HENRY LEE HIGGINSON, one of the trustees of the Carnegie Institution of Washington, died at Boston, Massachusetts, on November 14, 1919, in his eighty-fifth year.

Mr. C. H. KIDWELL has been appointed chief of the Quality-of-Water Division of the Water Resources Branch, U. S. Geological Survey, as successor to Mr. A. A. CHAMBERS, resigned.

Dr. OTTO KLOTZ, Director of the Dominion Observatory, Ottawa, has been appointed the representative of Canada on the "Committee on Magnetic Surveys, Charts and Secular Variation" of the International Geodetic and Geophysical Union, recently formed at Brussels.

Mr. E. C. MCKELVY, of the Chemical Division of the Bureau of Standards, died at Emergency Hospital on November 29, 1919, in his thirty-sixth year. His death resulted from burns received on the afternoon of November 28, from an explosion of ammonia-condensing apparatus containing petroleum ether cooled by liquid air. Mr. McKelvy was born at Upper Sandusky, Ohio, May 9, 1884. He joined the staff of the Bureau in July, 1907, and was chief of the physico-chemical section of the Chemistry Division at the time of his death. His work for several years past had been on the physical constants of ammonia and other substances used in commercial refrigeration. He was a member of the ACADEMY and one of the associate editors of its JOURNAL; had been secretary of the Chemical Society since 1915; and was a member of the Philosophical Society.

Dr. JAMES DUDLEY MORGAN, one of the early members of the ACADEMY, died at his home at Chevy Chase, Maryland, on November 21, 1919, in his fifty-eighth year. Dr. Morgan was born in Washington July 5, 1862. He spent most of his life in the practice of medicine in Washington, being connected at the same time with the Medical School of George Washington University, Garfield Hospital, and Emergency Hospital. In addition to his memberships in the medical societies, he was a member of the Columbia Historical Society, of which he was president from 1909 to 1916, and became a member of the ACADEMY in 1903.

Dr. CHARLES D. WALCOTT, Secretary of the Smithsonian Institution, has been elected an associate member of the Académie des Sciences, Paris.

Mr. FERDINAND WESTDAHL, hydrographic and geodetic engineer in the Coast and Geodetic Survey, died at San Francisco, California, on October 25, 1919, in his seventy-seventh year. Mr. Westdahl was born at Wisby, Sweden, January 20, 1843. He entered the Survey as an aid in 1867, having been employed previously by the Western Union Telegraph Company, Russian extension, as first mate of the bark *Golden Gate*. At that time he had served on board sailing ships in every capacity from boy to ordinary seaman, able seaman, second and first mate, and sailing master. He was the oldest officer and next to the oldest in point of service in the Survey. His work was chiefly in hydrography along the Pacific Coast, in Alaska, and in the Philippine Islands.

ERRATA

VOLUME IX, 1919

P. 357, line 26: For Humphries read Humphreys
P. 433, line 16: For *nósperos* read *nísperos*
P. 523, line 13: For *an* read *au*
P. 523, line 15: Omit ˢ'
P. 523, line 24: For spirant ˢ read spirant'
P. 523, line 7 from bottom: For affricative *tc* read affricative *tc*
P. 524, line 6: For *'ā'i'ᵈtci'* read *'ā'i'ᵈtc'*
P. 524, line 23: For *kekī'ci'ta'wipenᵃᵒ'* read *kekī'ci'ta'wipenᵃᴬ'*
P. 524, last line footnote ⁷: For hear ᴀ for *a*, and ᴬ' for ᵃ. read hear -ᴀ for -*a*, and -ᴬ' for -ᵃ.
P. 535, line 28: For Res. '76 read Res. 76

VOLUME VIII, 1918

P. 108, line 10: For Medical Corps read Medical Reserve Corps
P. 471, line 6 from bottom: For trajections read trajectories
P. 475, line 16: For plant read plane
P. 478, lines 12 and 15, and p. 479, lines 4, 15 and 16: For sight read site
P. 509, last line: For Section read Service
P. 693, second column, line 4: After 251 add 292, 369,

VOLUME VI, 1916

P. 226, line 2: For 17th read 18th

VOLUME V, 1915

P. 183, last paragraph, line 1: For 16th read 17th
P. 390, line 6: For 40° 1′ read $44°\frac{1}{2}1'$

VOLUME IV, 1914

P. 556, line 7 of table: For prism 110 read 010

VOLUME III, 1913

P. 226, line 5: For p_1, p_2, p_n read $\sqrt{p_1}, \sqrt{p_2}, \sqrt{p_n}$
P. 229, line 1: Add after word "weight:"(or weight $\frac{1}{x_n}$ in (2)).
P. 229, line 4: For by the least square method read from (3)
P. 231, line 1: For $x_1, x_2, x_n,$ read x_1^2, x_2^2, x_n^2
P. 231, line 2: For (5) read (2)′
P. 231, line 3: For (x) read (x^2)

VOLUME II, 1912

P. 178, line 1: For 175 read 176

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An * denotes an abstract of a published paper. A † denotes an abstract of a paper presented before the Academy or an affiliated Society. A § indicates an item published under the head Scientific Notes and News.

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